City of Rockville
Get Into It

Department of Community Planning and Development Services
Inspection Services Division
240-314-8240 / 240-314-8265 (Fax)
www.rockvillemd.gov/isd

CONSTRUCTION REQUIREMENTS FOR DECKS

General: Construction of wood decks shall conform to the 2012 International Residential Code (IRC) and City of Rockville Amendments Section 507. In case of unusual or complex design, the stamp of a Maryland registered architect or engineer maybe required.

Live Load: The minimum uniformity distributed live load for wood frame decks shall be 60 psf.

Footings: The minimum footing size shall be 16 inches x 16 inches x 8 inches in depth, with the bottom of the footing a minimum of 24 inches below grade. Increased size or load factors may require a larger footing as determined by the code official.

Posts: 4x4 posts may be used for decks less than ten (10) feet above grade. A minimum post size of 6x6 must be used for decks ten (10) feet or more above grade.

Attachment: Decks may be attached to structures by the use of ledger boards bolted to solid dimension lumber; using 1/2" diameter bolts at not more than 16-inch intervals. Placement of bolts shall be per Table R507.2.1 and Figure R507.2.1 (1). Ledger boards cannot be attached directly to plywood, non-dimensional bands, or truss joists. Deck structures cannot be attached to building cantilevers or to chimneys. See attached diagram for additional information.

Joist Hangers: Joist hangers shall be secured in accordance with the manufacturer's recommendations, including use of special nail type. Manufacturer's recommendations must be on the jobsite for review by the inspector.

Cantilevers: Cantilevers shall be limited to a maximum of 1/3 of the adjacent clear span, maximum 3 feet, designed in accordance with standard engineering practices.

Lateral Loads: Decks where supported by attachment to an exterior wall, shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable. Deck lateral load connection shall comply with Section R507.2.3. See attached diagram for additional information.

Flooring: 5/4 decking shall be limited to a maximum joist spacing of 16 inches. 2x4 and larger decking shall be limited to a joist spacing of not more than 24 inches. Composite and vinyl decking must be installed as per the manufacturer installation instructions for attachment and joist spacing. Manufacturers' information shall be provided on-site for the inspector.

Stairs: Stairs shall be constructed using stringers every 18 inches. The maximum riser height shall be $7\ ^{3}/_{4}$ inches, and minimum tread depth shall be 10 inches. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. The greatest tread run within any flight of stairs shall not exceed the smallest by more than 3/8 inch. When risers are closed, all treads may have a uniform projection not to exceed

$1\ ^{1}/_{2}$ inches. Open risers are permitted, provided that the opening between treads does not allow the passage of a 4" sphere. The triangular openings formed by the riser, tread and bottom rail of a guard shall not allow the passage of a 6" diameter sphere. Composite and vinyl decking used as stair treads must be installed as per the manufacturer installation instructions for attachment and joist spacing. Manufacturers' information shall be provided on-site for the inspector.

Handrails: Handrails shall be installed for all stairs with four or more risers, and shall meet the requirements of Section 311.7.8, 2012 IRC. Handrail posts shall be attached using a minimum of (2) 1/2-inch diameter bolts per post. Handrail height, measured vertically from the sloped plane adjoining the tread nosing shall be not less than 34 inches and not more than 38 inches. Handrails shall be graspable and be provided on at least one side of each continuous run of treads or flight with four or more risers. Handrail ends shall be returned or terminate in newel post or safety terminals. Picket spacing shall not allow the passage of a 4-3/8" sphere. Composite and vinyl rails must be installed as per the manufacturer installation instructions. Manufacturers' information shall be provided on-site for the inspector.

Guardrails: Deck floor surfaces located more than 30 inches above the floor or grade below shall have guardrails meeting the requirements of Section 312, 2012 IRC. The use of wood lattice in lieu of intermediated pickets or rails is prohibited. Composite and vinyl rails must be installed as per the manufacturer installation instructions. Manufacturers' information shall be provided on-site for the inspector.

Illumination: All exterior stairs shall be provided with a means to illuminate the stair, including the landing and treads. Exterior stairs shall be provided with an artificial light source rated for a minimum of 850 lumens located in the immediate vicinity of the top landing of the stair. (Sec. R311.7.9, 2012 IRC). The illumination of exterior stairs shall be controlled from inside the dwelling unit unless continuously illuminated or automatically activated. (Sec. R311.7.9, 2012 IRC)

Receptacle: Balconies, decks, and porches that are accessible from inside the dwelling unit shall have at least one receptacle outlet installed within the perimeter of the balcony, deck, or porch. The receptacle shall not be located more than 6½ feet above the walking surface. (2011 NEC)

NOTE: DECKS MAY NOT BE CONSTRUCTED CLOSER TO A FIREPLACE VENT TERMINATION CAP THAN THE MINIMUM CLEARANCE SPECIFIED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR THAT SPECIFIC VENT ASSEMBLY.

Inspections: In order to determine correct and sufficient deck attachment, framing inspections will include verification by the inspector that the ledger is bolted to an acceptable band. This may require an inspection from the interior of the structure after the ledger has been bolted. If a finished ceiling is in place preventing visual inspection of the band board and bolting, the ceiling section must be removed to allow for inspection, or the deck maybe designed and constructed as an independent structure, eliminating the need to inspect the band and ledger bolting.

APPROVED PLANS ARE REQUIRED TO BE AVAILABLE ON-SITE, IN ORDER FOR AN INSPECTION TO BE CONDUCTED.

REQUIRED INSPECTIONS AFTER PERMIT ISSUANCE

APPROVED PLANS MUST BE ON-SITE AT TIME OF INSPECTION. CITY INSPECTORS WILL NOT PERFORM INSPECTIONS WITHOUT APPROVED PLANS.

CHANGES TO THE APPROVED PLANS WILL RESULT IN DISAPPROVAL OF THE CONSTRUCTION. ALL CHANGES MUST BE APPROVED BY RE-SUBMITTAL TO THE CITY AND THE PAYMENT OF A PLAN REVISION FEE.

1. **FOOTING/PIER:** Inspection is performed prior to placement of concrete.

   The footing(s) must be free of debris, loose soils, water and mud. The footings must be on undisturbed soil and have a level bottom.

   INSPECTION CODE: #**100**

2. **DECK FRAMING (FLOOR FRAMING)**: Inspection of the floor framing is required for all decks within 36" from grade, and prior to the installation of the deck floorboards. The 36" measurement is taken from grade to the bottom of the floor joist.

   The floor framing inspection includes inspection of the support post, beam size, floor joist size, spacing of all structural members, attachment/bolting of the band/ledger to the house.

   NOTE: Only approved Teco type nails can be used with joist hangers. The use of screws or common nails will result in disapproval of the installation. Joist hangers must be installed in accordance with their listing. All exterior bolts and related hardware must be corrosion resistant.

   INSPECTION CODE: #**107**

3. **FRAMING/FINAL**: Inspection is performed once all construction on the deck is completed. All related construction must be complete. This includes but is not limited to; Handrails, guardrails and stairs. City inspectors will inspect for handrail/guardrail height, termination of handrail ends, picket spacing (Distance between pickets must be less than 4") bolting of guardrail/handrail posts framing member sizes, types of fasteners used, bolting of ledger to house, spacing of support post, size of support post and decking and other construction materials.

   INSPECTION CODE: **#198**

4. **NON-FREE STANDING DECKS**: Ledger and Lateral Load Connection attachments to the house. In order for City Inspectors to determine correct and sufficient deck attachment, framing inspections will include verification by the inspector that the ledger is bolted to an acceptable band. This may require an inspection from the interior of the structure after the ledger is bolted. If a finished ceiling is in place preventing visual inspection of the band board and bolting, the ceiling section **must** be removed to allow for inspection.

Requests for inspections must be scheduled in advance by calling the City of Rockville inspection line at 240-314-5040. For additional information on scheduling inspections please use the Voice Permits IVR User's Guide.

Allowable Span for Beam / Girders Supporting **One floor** Only										
Size of the Beam	Floor Live Load (PSI)	Space of "S" / Tributary Load to Beam Spacing in Feet								
		4	5	6	7	8	9	10	11	12
(2)2X6	60	6'6"	6'0"	5'6"	5'0"	4'6"	4'6"	4'0"	4'0"	4'0"
(2)2X8	60	8'6"	8'0"	7'6"	7'0"	6'6"	6'0"	5'6"	5'6"	5'0"
(2)2X10	60	11'6"	10'6"	9'6"	8'6"	8'0"	7'6"	7'0"	7'0"	6'6"
(2)2X12	60	13'6"	12'6"	11'6"	10'6"	10'0"	9'6"	9'0"	8'6"	8'0"

Spans are based on #2 grade lumber
The spacing "S" is the tributary load to the beam / girder. It is found by adding the unsupported spans of the floor joist on each side which are supported by the beam / girder, and divide by 2.

Floor Joist Spans

#2 grade P.T. Pine L/360

60 lbs. Live Load
10 lbs. dead load

Spans (Feet and inches)											
2X6			2X8			2X10			2X12		
12"o.c	16"o.c	24"o.c	12"o.c	16"o.c	24"o.c	12"o.c	16"o.c	24"o.c	12"o.c	16"o.c	24"o.c
9'0"	8'2"	7'2"	11'9"	10'9"	9'4"	15'0"	13'3"	12'0"	18'0"	16'8"	14'6"

DECK ATTACHMENT FOR LATERAL LOADS

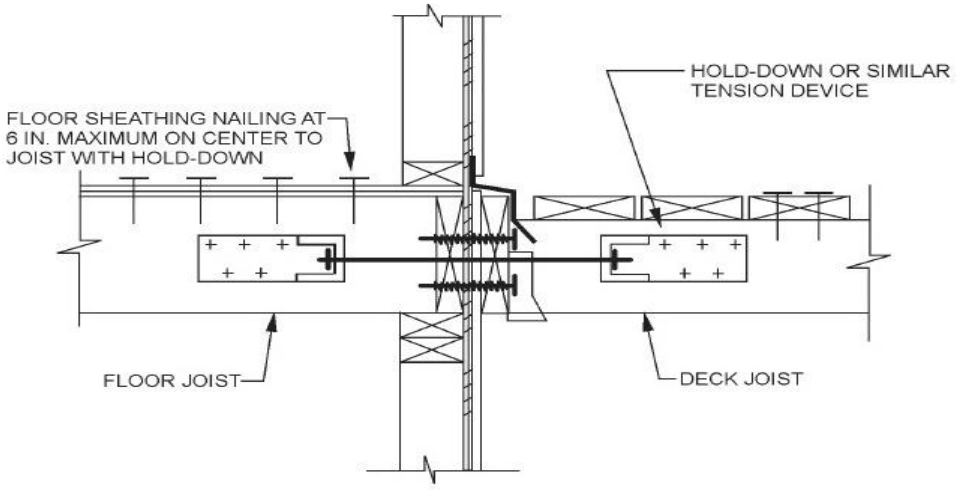


FIGURE 507.2.3
DECK ATTACHMENT FOR LATERAL LOADS

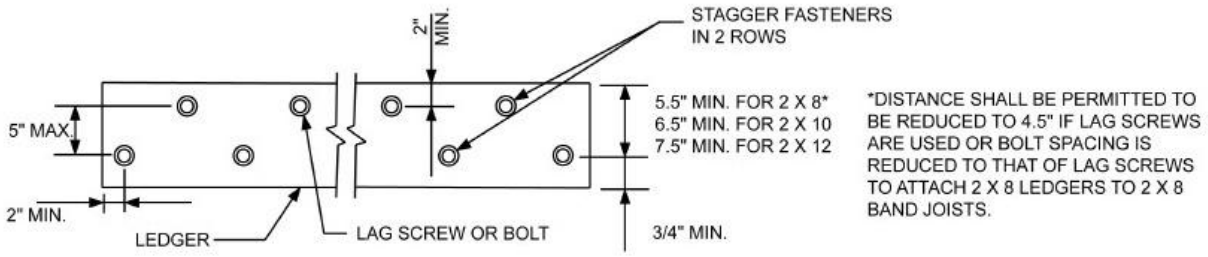
DECK ATTACHMENT TO LEDGER BOARDS

TABLE 507.2.1
PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS

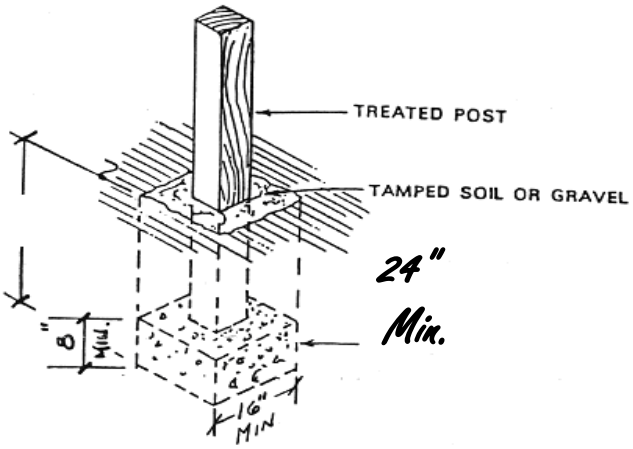
MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS				
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
Ledger[a]	2 inches[d]	1/4 inch	2 inches[b]	1 5/8 inches[b]
Band Joist[c]	3/4 inch	2 inches	2 inches[b]	1 5/8 inches[b]

a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.2.1(1).
b. Maximum 5 inches.
c. For engineered rim joists, the manufacturer's recommendations shall govern.
d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.2.1(1).

FIGURE R507.2.1(1)
PLACEMENT OF LAG BOLTS IN LEDGERS

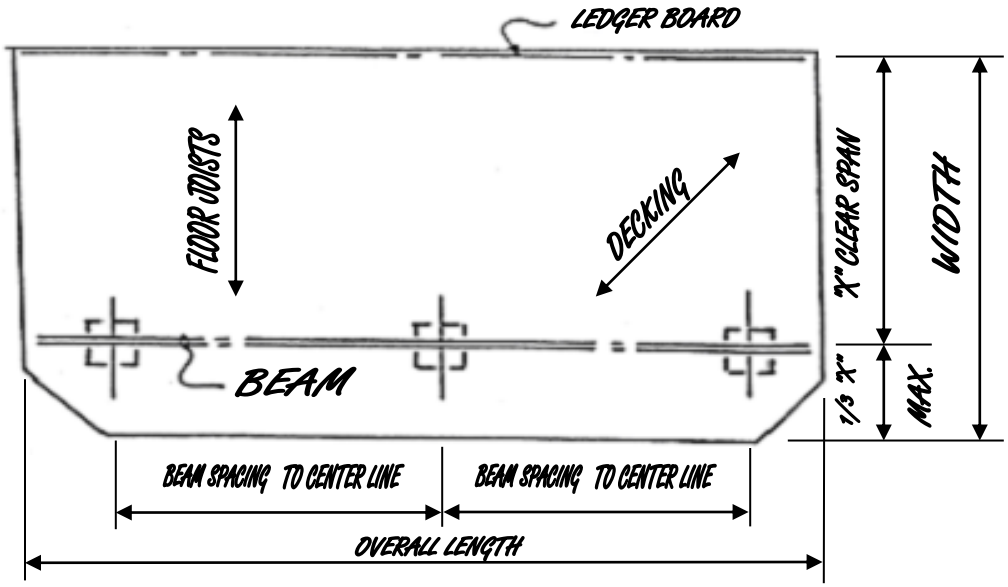


FOOTING DETAIL



EXAMPLE ONLY
NOT FOR PLAN SUBMITTAL

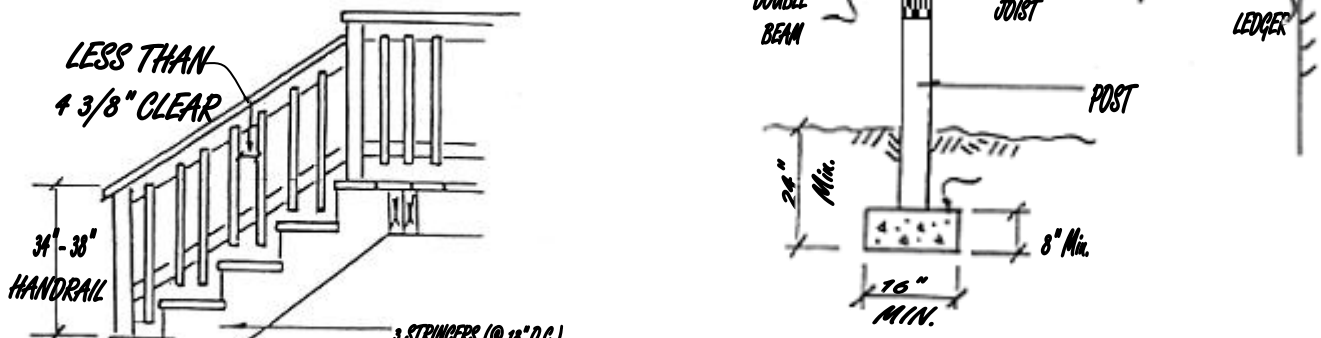
Revised 6/27/12



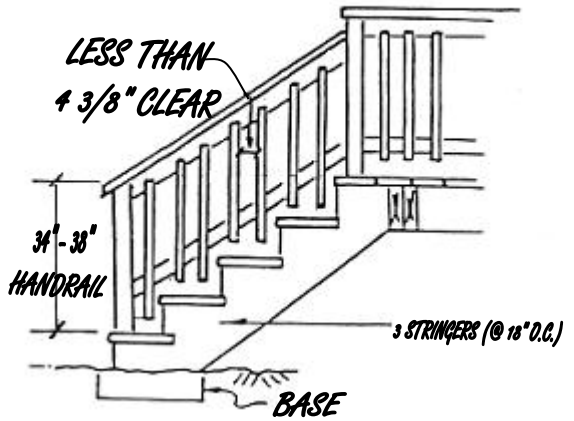
PLAN

EXAMPLE ONLY

NOT FOR PLAN SUBMITTAL



TYP. SECTION



NOTE:
MAX. RISER 7-3/4"
MIN. TREAD 10"

TYP. STEPS